



Step 1: First **collected management data** from water and wastewater utilities in North Carolina through the **Qualtrics** platform.

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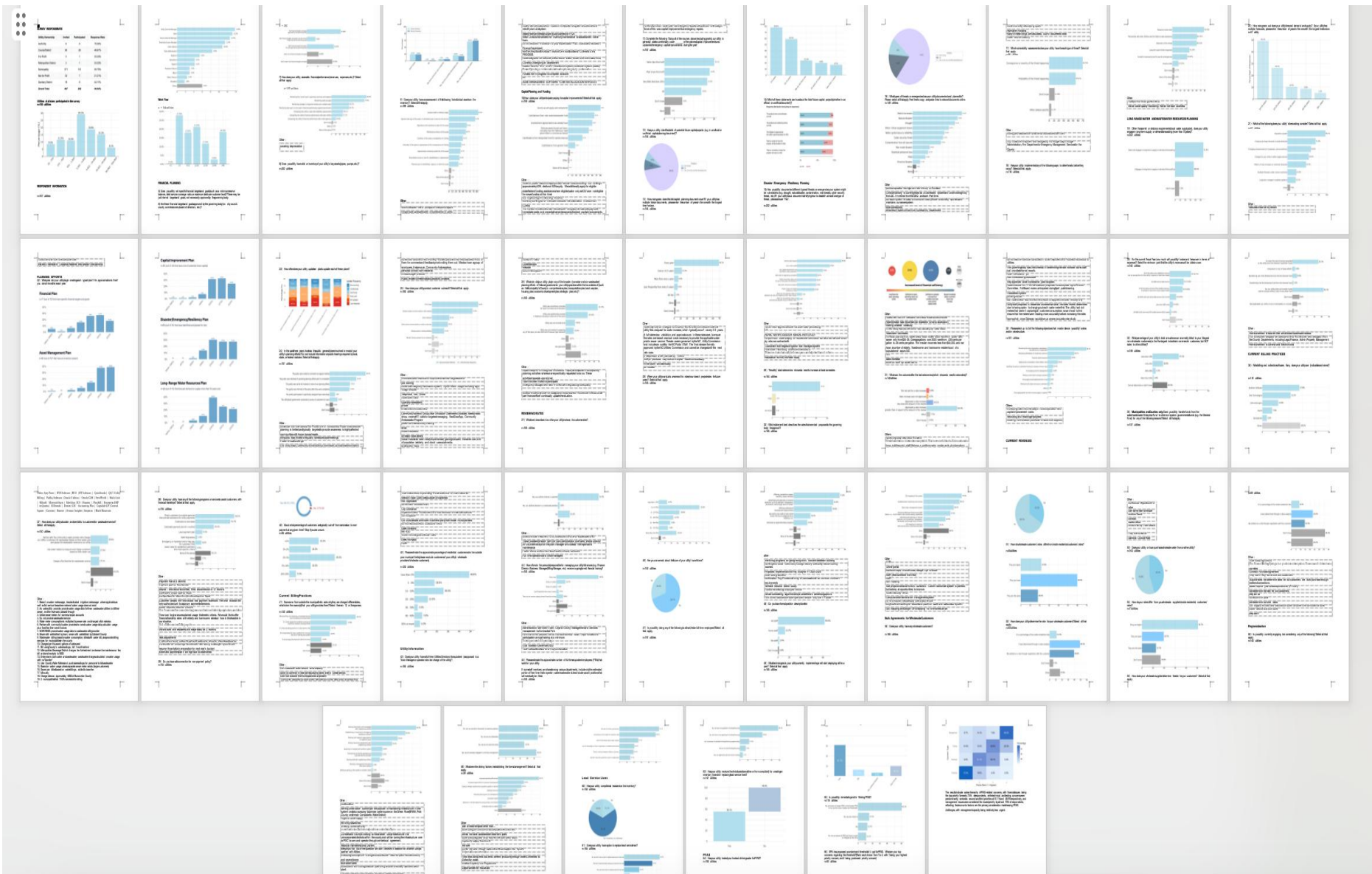
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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	Start Date	Progress	Duration	Finish	utility_r	utility_c	utility_s	account_count	response	respondent_title	respondent	respondent_years	manager	manager_pl	manager	contact	contact	contact1_pl	contact	contact	contact	contact	contact	contact	financial_targets	targets	financial
2	3/26/2024	100	1805	TRUE																							
3	3/26/2024	100	1594	TRUE																							
4	3/26/2024	100	719	TRUE																							
5	3/26/2024	100	2983	TRUE																							
6	3/26/2024	100	1661	TRUE																							
7	3/26/2024	100	1515	TRUE																							
8	3/26/2024	100	1748	TRUE																							
9	3/26/2024	100	1745	TRUE																							
10	3/26/2024	100	1065	TRUE																							
11	3/26/2024	100	77510	TRUE																							
12	3/27/2024	100	2162	TRUE																							
13	3/27/2024	100	1909	TRUE																							
14	3/26/2024	100	174068	TRUE																							
15	4/1/2024	100	2286	TRUE																							
16	4/1/2024	100	1475	TRUE																							
17	3/26/2024	100	618757	TRUE																							
18	3/27/2024	100	465654	TRUE																							
19	4/2/2024	100	4645	TRUE																							
20	3/26/2024	18	241	FALSE																							
21	3/26/2024	12	1155	FALSE																							
22	3/26/2024	54	1490	FALSE																							
23	3/26/2024	3	41	FALSE																							
24	3/26/2024	27	1021	FALSE																							
25	3/26/2024	35	1454	FALSE																							
26	3/26/2024	3	53	FALSE																							
27	4/2/2024	100	1501	TRUE																							
28	3/27/2024	14	409	FALSE																							
29	3/26/2024	14	74467	FALSE																							
30	3/27/2024	3	128	FALSE																							
31	3/27/2024	10	210	FALSE																							
32	3/28/2024	3	393	FALSE																							
33	3/28/2024	3	406	FALSE																							
34	3/28/2024	84	1801	FALSE																							
35	4/8/2024	100	1825	TRUE																							
36	4/8/2024	100	1734	TRUE																							
37	4/9/2024	35	1041	FALSE																							
38	4/9/2024	52	561	FALSE																							
39	4/11/2024	12	317	FALSE																							
40	4/18/2024	100	3447	TRUE																							
41	4/12/2024	18	515	FALSE																							
42	4/22/2024	100	1069	TRUE																							
43	4/22/2024	100	1049	TRUE																							
44	4/22/2024	100	1952	TRUE																							
45	4/22/2024	100	1313	TRUE																							
46	4/23/2024	100	1330	TRUE																							
47	4/23/2024	100	3653	TRUE																							
48	4/23/2024	100	7132	TRUE																							

Original participated Sheet3

Step 2: After downloading the raw data in Excel format from Qualtrics, which contained **over 140 relevant variables**, I performed **data cleaning** procedures including handling missing values, standardizing data formats, and removing duplicate entries to prepare for subsequent analysis.



Step 3: I utilized **R**, **Python**, and **Tableau** for **data analysis and visualization**, ultimately producing a comprehensive 40-page North Carolina Water and Wastewater Utility Management Survey Report that includes detailed insights and visual representations of the findings.